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(54) LATCHING TYPE HEAT-DRIVEN MICRO-RELAY  
ELEMENT

(57) Abstract:

PROBLEM TO BE SOLVED: To provide an extremely small micro-relay capable of being integrated and having low contact resistance by changing the internal pressure of a storage chamber via a temperature difference, of a storage chamber via a temperature difference, moving a conductive liquid metal in a channel, and closing or opening signal electrodes.

SOLUTION: Power is applied to the heater 12 of an active storage chamber 10 or the heater 42 of a passive storage chamber 40, the internal pressure of the storage chamber is changed by temperature, a liquid metal 50 is moved in a channel 20, and signal electrodes 34, 35 or 31, 32 are closed or opened. When power is selectively applied to the heater 12 or 42, the signal can be turned on or off. This latching heat-driven micro-relay element can be integrated in a silicon wafer bulk by the technique such as macro-burnishing, electroplating, and conductor process, and an extremely small micro-relay capable of being integrated and having small contact resistance can be obtained.

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